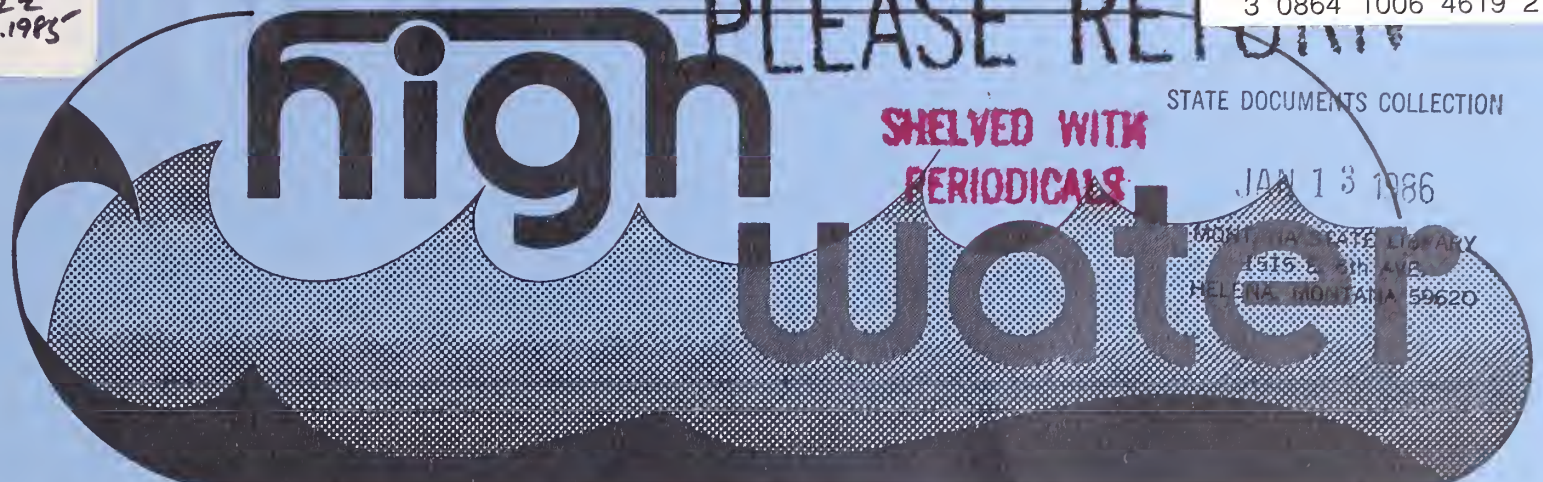


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**FLOODPLAIN MANAGEMENT SECTION** 444-6646

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**ALLUVIAL FAN FLOODING**

Alluvial fans are fan-shaped deposits of sediment, and are commonly found in western Montana at the mouth of canyons, near the base of mountains. Topographic maps show that the elevation contour lines on an alluvial fan are roughly parallel, and often form concentric arcs around the fan apex or the mouth of the canyon. Flooding on alluvial fans differs from that of more typical riverine flooding. Often, there is no identifiable channel or it is interrupted, and several channels are scattered across the fan. Flood water is seldom more than a few feet deep on alluvial fans, but it moves swiftly. Flow is usually confined to only a small part of the fan, although floods pose a hazard to almost all of the fan. During a flood, the flow of water is subject to lateral migration so that the degree of flood hazard is roughly the same for all points that are the same distance along radial lines from the fan apex (canyon mouth).

Streams flow at a higher elevation than the surrounding floodplain, which is a result of sediment deposition in the channel and natural levees on the bank. Channel sizes are generally very small when compared to the magnitude of flood flows that occur. Because of the very high velocities, erosion and sediment deposition create a major hazard. Normal floodproofing measures such as elevating lowest floors and building a pad of fill may not provide adequate protection.

Alluvial flooding poses a special problem for local officials, because FEMA flood insurance study maps do not show the true potential for flooding there. Flood boundaries are normally shown as a narrow floodplain along a channel that was active when the flood insurance study was done. Since then, some streams have migrated laterally so that they are no longer in the mapped 100-year floodplain.

Current Montana statutes limit the ability of counties to adopt and administer land-use regulations. The Floodplain and Floodway Management Act facilitates the adoption of floodplain management regulations, but it requires the designation of floodplains by the Board of Natural Resources and Conservation. Designation requires study and mapping of flood hazard areas.

Maps, though, are only tools for making land-use decisions and not a substitute for sound judgment. Maps, alone, should not be used to judge development proposals. After all, the purpose of planning and health boards, building inspectors, and floodplain administrators is to protect the public safety.



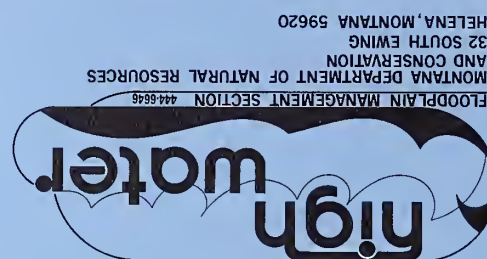
**ALLUVIAL FAN AT LIBBY, MONTANA**

The alluvial fan shown above was taken from a U.S. Geological Survey Quad. map of Libby, Montana. The contour lines, marked with elevation numbers, illustrate the characteristic fan shape. The map also shows highways, subdivisions, and railroads which change and complicate flooding patterns.

**ANNUAL CONFERENCE**

The 1985 National Flood Insurance Program Annual Conference will take place November 19 through 22 in Arlington, Virginia. Some of the topics for discussion are: Tools for Achieving Program Compliance For Existing Construction; Loss Prevention Strategies (Retro-floodproofing Residential Structures); and Performance of Building Standards (Post Flood Building Damage Assessments). Deeda Richard from our state Floodplain Management Office will be attending the conference. We hope the conference will offer some new ideas for Montana's Floodplain Programs.





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## STORMWATER FLOOD INSURANCE

Flooding in cities and towns sometimes occurs outside the floodplain. Flooding in urban areas that are not designated flood hazard areas can result from inadequate stormwater drainage or poor street layout.

Two cases in point are Cheyenne, Wyoming and Glasgow, Montana. According to the Interagency Hazard Mitigation Report, FEMA, the majority of damage in Cheyenne's disastrous August 1, 1985 flood was caused by the "Inability of the urban stormwater management system to convey the surface water runoff created by the storm. These areas of stormwater runoff are not reflected on existing Flood Insurance Rate Maps, as flood insurance studies do not take into account local drainage problems."

There was a similar, but less severe flood in Glasgow this summer. On August 2, 2.96 inches of rain fell and 2.04 inches more fell on August 3. Some streets and basements were flooded, and a motel sustained water damage on the ground floor. If the rain had fallen when the ground was frozen or saturated, more flood damage probably would have occurred.

Since Glasgow is protected from Milk River flooding by a US Army Corps of Engineers levee, the city is not a designated flood hazard area. Property owners can get flood insurance in areas where stormwater damage occurs even if they aren't in a designated floodplain. However, flood insurance is available to property owners outside the designated floodplain only if the community participates in the Flood Insurance Program. Flood insurance will cover damage from the unusual or rapid accumulation of runoff or surface water from any source. Finished basements are not covered, but utilities such as furnaces, water heaters, water softeners, washers, dryers, and freezers are covered. Policies also cover damage to foundation and bearing walls.

## LEWIS AND CLARK COUNTY AWARDED GRANT

Lewis and Clark County has received a Federal Emergency Management Agency grant for a Hazard Mitigation Plan. The plan is to reduce vulnerability from recurring and potentially severe hazards in the Eastgate/North Eastgate area northeast of East Helena. The area covers approximately 13 square miles and is the fastest-growing urban, unincorporated area of the county. Specific hazards to be addressed are earthquake, flooding, stormwater drainage and to a lesser extent aircraft flight path, railroad activity, and the Yellowstone pipeline.

The plan is divided into two phases. Phase I will establish a data and information base for the location of

specific hazards. Phase II, with local involvement, will develop a specific work program and implementation plans to mitigate hazards and avoid construction in the hazard areas. The grant is \$10,000, matching in-kind hours and services will be provided by Paul Spengler, the Disaster and Emergency Coordinator and by the Lewis and Clark Areawide Planning Organization (APO). We congratulate Lewis and Clark County; Gus Byrom, APO Director; and Paul Spengler on the fine job in preparing this proposal.

Other Montana communities will be eligible to apply for Hazard Mitigation Assistance Grants for the federal 1987 fiscal year (October 1986-September 1987). The Federal Emergency Management Agency will be providing grant proposal guidelines in the spring of 1986. We will be publishing more details on the grants then. If you need details before then, please contact the Floodplain Management Section.



## DEEDA RICHARD—NEW COORDINATOR

Deeda Richard was hired last June as Montana's National Flood Insurance Program Coordinator. She was formerly a DNRC Water Rights Field Office employee and also worked with the Conservation Districts Division. Deeda has a bachelor's degree in natural resources with a specialization in environmental education. She has been employed by the Department for six years.

### Floodplain Management Section Staff:

John Hamill, Supervisor  
Cindy Forgey, Secretary/Clerk  
Deeda Richard, Coordinator, NFIP